



Energy Efficiency Services Strategies in Industrial Sector Facilities

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Topics

- Barriers to Energy Efficiency
- ESCO Experience in the US market
- ESCO Experience outside the US
- ESCO Qualification
- Case Studies

Topics

Barriers to
Energy
Efficiency

ESCO
Experience in
the US Market

ESCO
Experience
Outside the
US

ESCO
Qualification

Case Studies

Barriers to Energy Efficiency in U.S. Industrial Facilities **SIEMENS**

Barriers to
Energy
Efficiency

- **Decision Making**
 - Central corporate Management versus Local Plant Management
 - Matrix Management (Plant, Process, Corporate Engineering, Purchasing)
- **Energy Costs for Infrastructure maybe small compared to energy costs for process**
- **Simple Payback versus Lifecycle Cost Analysis**
- **Perceived Internal Expertise**

ESCO Experience in the US market

SIEMENS

ESCO
Experience in
the US Market

- Big Opportunity, Slow Development
- Challenging Customers
 - Quick to agree on program charter
 - Long time to create projects
 - Long time to make decisions
- Program based versus project based
- Non-standard “technologies” may drive the opportunities
 - Waste-to energy
 - Compressed air systems

Experience doing industrial sector projects outside the U.S.?

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■ Europe

- Active in Germany
- Active in Hungary
- Active in Sweden
- Starting to develop in Italy, Czech Republic
- Minimal Activity – England, France

■ Asia Pacific

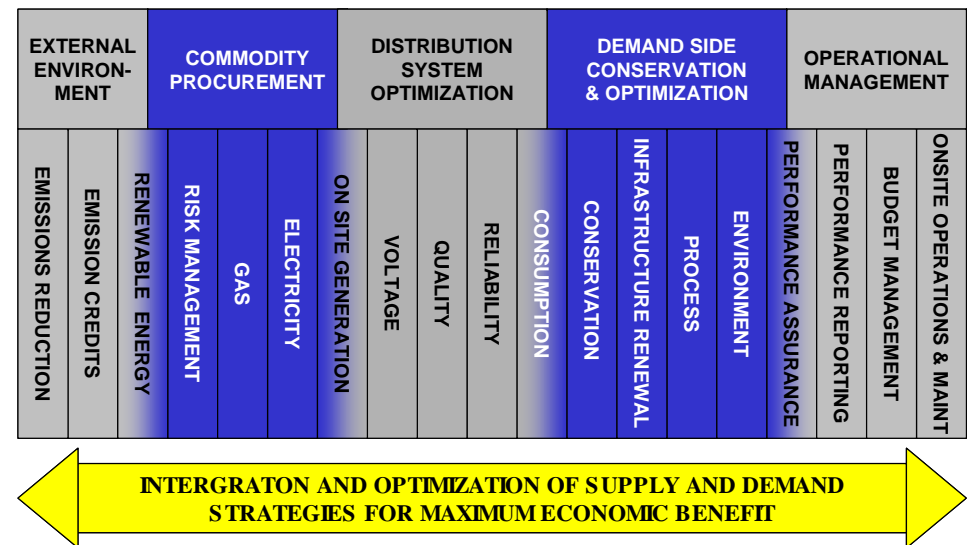
- Minimal Activity to date

ESCO
Experience
Outside the
US

What are customers looking for in ESCOs?

SIEMENS

- Subject Matter Expertise
- Resources
- Engineering Skills
- Flexibility
- Financially Strong
- Willing to Guarantee Project Performance
- Passion for Energy Conservation



ESCO
Qualification

Case Studies

Case Studies

Siemens Industrial Experience

Pharmaceutical
and Biotech



Siemens Healthcare
Gillette
Cardinal Health

High-tech



Verizon
Unisphere Networks
BAE Systems
Bell South

Commercial &
Industrial Facilities



3M
Lockheed Martin
Parker-Hannifin
Coors

Case Studies

3M

3M CEO W. James McNerney, Jr., set an ambitious goal of increasing sales and operating earnings by at least 10% each year

3M set specific objectives to improve energy efficiency, reduce cost, decrease capital investment, reduce environmental emissions, and conserve natural resources.

Goal: Reduce energy usage per pound of product by 20% over five years.

The program is global, launched in North America first and now being rolled out to other plants throughout the world.

Now in its second year, the centralized, strategic energy initiative is designed to serve the decentralized needs of about 130 plants around the world.

SIEMENS

Siemens Building Technologies

Energy a big factor for 3M

Giving energy a high priority and better understanding its role in the organization has enabled 3M to develop a new strategic energy initiative that promises significant cost and operational benefits.

3M is a \$16 billion diversified technology company with leading positions in health care, safety, electronics, telecommunications, industrial, consumer and office, and other markets.

3M has been a model in understanding the role of energy in its business and taking proactive measures. As reported by the Wall Street Journal, CEO W. James McNerney, Jr., set an ambitious goal of increasing sales and operating earnings by at least 10% each year and introduced Six Sigma quality management program to the entire organization. With energy as a high



priority, 3M has set specific objectives to improve energy efficiency, reduce cost, decrease capital investment, reduce environmental emissions, and conserve natural resources.

Its latest strategic approach now emphasizes energy efficiency as a factor in product development and in process and facility design. Part of the indirect cost reduction initiative is an energy reduction program to cut energy usage per pound of product by 20% over five years. The program is global, launched in North America first and now being rolled out to other plants throughout the world. Now in its second year, the centralized, strategic energy initiative is designed to serve the decentralized needs of about 130 plants around the world. 3M recruited Siemens Building Technologies as a strategic partner to help implement the program and to make strategic energy services available as needed to individual locations. Siemens, which guarantees project performance in energy savings, will provide local expertise and energy engineering resources to interested plants.

reliable energy supplies at the most advantageous rates and implement contingency plans to protect operations from energy supply interruptions. The program also encourages continuous energy conservation by employees in their work and personal activities, as well as cooperation with governmental agencies and utility companies on energy problems and solutions.

Siemens Services. Siemens offers the Strategic Energy Program (SEP) for large energy users like 3M. The SEP comprises a range of services designed to keep operations at optimum levels while conserving energy, avoiding unnecessary costs, and assuring that the customer pays the lowest price for energy supply. The SEP includes:

- Supply-side Management
- Demand-side Management
- Utility Information Services
- On Site Generation Solutions
- Technical Support Programs

Each customer may tailor the program by picking and choosing the desired service modules to best achieve their business goals.



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Reports Tom Williams, manager of North American plant engineering: "Each operation now has the ability to tap Siemens for the professional resources they need to better manage energy and cash flow." The program defines a seamless process of engagement using energy teams that comprise members from both companies.

3M's program emphasizes energy efficiency as a factor in product development and in process and facility design. It secures adequate and



Case Studies

Siemens Building Technologies

– Buffalo Grove, IL

SIEMENS

■ Overview

- Located in Buffalo Grove, Illinois, the National Headquarters of Siemens Building Technologies, Inc. consists of a five building campus with more than 1,000 employees.

■ Services Provided:

- Closely monitored the ever-changing deregulation process in the state of Illinois
- Enabled Siemens to become eligible, via lottery selection, to take advantage of deregulation savings opportunities 15 months ahead of the majority of companies
- Developed comprehensive Requests for Proposals and evaluated responses from Alternative Retail Electric Suppliers (ARES)
- Negotiated the terms and conditions of the contract to reach an ideal balance between potential savings and possible risk.
- Continues to act as a technical advisor on energy services

■ Results:

- Obtained savings of \$150,000 over the 18-month initial contract period.

Annual Energy
Commodity cost Savings
over 10%

Case Studies

GTE Telephone Operations

■ Overview

- With revenues of more than \$21 billion in 1996, GTE is one of the largest publicly held telecommunications companies in the world. In the United States, GTE offers local and wireless service in 29 states and long distance service in all 50 states.



■ Services Provided

- SBT's Energy Consulting Services group was retained by GTE to assist their Purchasing and Contract Management Departments (Energy Team) with a multitude of competitive energy requests for proposals and various energy purchase contracts. SBT is playing a vital role in contract negotiations as well as energy strategies for the future of a substantial amount of GTE's 10,000 plus facilities across the country.
- SBT's Energy Consulting Services group also assists GTE with energy conservation and management contract negotiating with various energy service providers.

Boeing Defense & Space Group

■ Overview

- The Boeing Defense & Space Group is located on a 232-acre complex in Seattle, Washington.
- With 28 buildings and more than 2.3 million square feet, the center provides R&D, manufacturing and administrative facilities for over 11,000 employees.

■ Client objectives:

- Improve reliability and comfort of indoor environments.
- Increase capacity and efficiency of central plant distribution systems.
- Reduce construction and operating costs

■ Siemens Building Technologies Solutions:

- Performed a series of analyses and studies to value-engineer construction design concepts, capital improvements and energy conservation programs.
- Developed a Technical Support Program that provides on-site project management and technical services; automation system training for plant staff and software updates
- Provided ongoing monitoring verification and reporting of cost savings in construction, labor equipment and energy

■ Results:

- Stabilized indoor environments for manufacturing, research, development, and administrative processes and dramatically reduced variations in temperature and humidity. Significantly increased employee comfort levels throughout the complex.
- Reduced chiller plant energy consumption by 30% via optimization and dramatically improved performance of all HVAC systems and netted a 1.5 million kWh savings via automation system
- Achieved a total annual energy savings of over 7.2 million kWh
- Saved a total of nearly \$750,000 in capital equipment costs

Annual Energy Savings of
Over 7.2 Million KWH

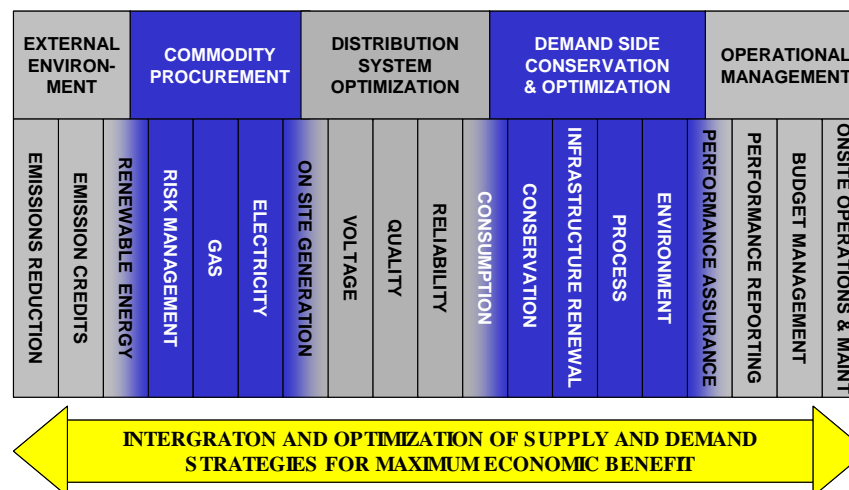
Kraft General Foods – Illinois

- **Overview**
 - The 500,000 square-foot facility in Northfield, Illinois serves as Kraft General Foods' world headquarters for more than 1,200 employees and tenants.
- **Client objectives:**
 - Reduce electricity costs.
 - Optimize HVAC system performance, reduce costs.
 - Maintain optimum occupant comfort and air quality.
 - Exceed recommended IAQ (Indoor Air Quality) specifications for outside air changes
- **Solutions provided by Siemens Building Technologies:**
 - Installed a Siemens Building Automation System
 - Provided a dial-up feature to simplify system access, and a remote paging feature to alert engineers automatically in the event of a problem
 - Provided a complete Technical Support Programs to include full service, training and software updates for the automation system.
- **Results:**
 - Annual electricity usage was reduced between 25% and 30% compared to another Kraft building of similar size and use.
 - Prevented the need for more than one shift per day
 - Ice storage system operates accurately and economically at night
 - Unattended, automation system documented heating component failures resulting in manufacturer's credit, trend reports help troubleshoot HVAC system and offer a valuable management tool.

Annual Energy Savings
reduction of 25-30%

Summary

Since the early 90's, the EPC market in NA has been robust, providing clients with the ability to fund billions of dollars of major energy infrastructure renewal by capturing future savings.



Under this model, ESCO industry has create a new set of key deliverables that allow the integration and optimization of supply, demand, and operational strategies for the maximum economic value of the clients.

Additional Information

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